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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/532,380

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Claus Bischoff

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EXAMINER

VANAMAN, FRANK BENNETT

ART UNIT

PAPER NUMBER

3618

MAIL DATE

DELIVERY MODE

02/08/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/532,380	Applicant(s) BISCHOFF ET AL.	
	Examiner Frank B. Vanaman	Art Unit 3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Dec, 24, 2007 has been entered.

Claim Rejections - 35 USC § 112

2. Claims 13-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 13, line 2, it is not clear whether the recited phrase "an on-board electrical system" refers to the previously recited on-board electrical system (as now recited in claim 12 at line 4, by applicant's own amendment), or a different on-board electrical system.

Claim Rejections - 35 USC § 102 or 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 12, 13, 18, 19, 21 and 22 are rejected under 35 U.S.C. 102(b) as anticipated by Hara et al. (US 5,713,814) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hara et al. in view of King (US 5,345,154).

Hara et al. teach a control system for a motor vehicle having a hybrid configuration including an engine (1) and motor/generator (5) as well as a transmission (4) for driving vehicle wheels (19), including a controller (10) which controls the operation of the vehicle including the engine, battery (7) which constitutes at least a portion of an on-board electrical system of the vehicle which requires power based on its level of charge to the breadth this limitation is actually recited in the claims, motor/generator, and transmission, and monitors an engine speed (11), vehicle speed (14), motor generator speed (15) and battery state of charge (17), wherein battery state of charge, understood to be inversely proportional to the power required by the battery to return the battery to a full charge, is employed to select amongst a plurality of

characteristic operating maps (e.g., figures 14, 15, 16), each of which relate kinematic and dynamic degrees of freedom to operational configuration of the vehicle including at least a speed and a set-point throttle position.

Alternatively, the reference to Hara et al. fails to explicitly teach that a battery state of charge is related to a power requirement. King teaches that it is well known in hybrid vehicle operation that a power requirement (e.g., for recharging) of a battery is related in an inverse manner to the battery state of charge (see col. 4, lines 8-26, and col. 4, lines 31-45, and col. 4, line 64 through col. 5, line 49). It would have been obvious to one of ordinary skill in the art at the time of the invention to explicitly relate the power required to charge a battery of the vehicle taught by Hara et al. as based on the battery state of charge, as suggested by King, the state of charge already taught to be measured by Hara et al. and already taught to be used to control the selection of characteristic control maps.

Claim Rejections - 35 USC §103

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al. (cited above) or alternatively Hara et al, in view of King. The reference to Hara et al. or Hara et al. as modified by King is discussed above and while teaching a setpoint throttle position, fails to explicitly teach a setpoint torque. It is very well known in the vehicle arts that a desired torque is set by either a throttle position or a braking control position, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a setpoint torque in the engine/motor control map in order to tailor the operation of the vehicle to accommodate braking conditions (i.e., when a throttle opening would expectedly be at zero) as well as speed increase and/or maintenance conditions.

6. Claims 14-17, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al. in view of Yoshino et al. (EP 1,142,749, cited by applicant) or alternatively Hara et al. in view of King and Yoshino et al. The reference to Hara et al. or alternatively Hara et al. as modified by King is discussed above and fails to teach the use of the electrical power required by consumers on the vehicle as governing the choice of characteristic map. The examiner notes that indirectly, any consumer requiring

power from the battery will affect the battery state of charge, and as it is very common for a vehicle to have at least one on-board consumer (e.g., radio, light, wiper motor, etc.) it is initially well known that the use of a consumer will have an effect on the battery condition. Further Yoshino teaches that it is well known to additionally take into consideration the on-board loads (paragraph 0052, value tTg) in determining an overall power requirement in the management of an electrical system of a hybrid vehicle. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to explicitly take into consideration the value of on-board power loads for the vehicle in determining an operational mode for the purpose of anticipating load conditions prior to a measurable change in battery state of charge in the vehicle taught by Hara et al. or alternatively the vehicle of Hara et al. as modified by King, thus promoting a more responsive control system.

Response to Comments

7. Applicant's comments, filed with the amendment and request for continued examination have been carefully considered. As regards the provision of "an on-board electrical system" the examiner notes that to the breadth this limitation is actually recited in the pending claims, the battery and, for example, its connecting elements, can be understood to constitute an on-board electrical system. As regards the power requirement of the system, the examiner notes that it is understood to be well known that a lower battery state of charge would require a greater amount of power to return the battery to a state of full charge than a higher state of charge. As such, the power required by the battery to return the battery to a full state of charge would be understood to carry an inverse proportionality to the state of charge itself. Further, the examiner notes that this is rather well borne out by the prior art (see the reference to King, now applied alternatively to the independent claim and certain dependent claims), and as such, it is understood that one of ordinary skill in the art would be well aware of the relationship of battery state of charge to the power required to return the battery to a full state, for example. The examiner recognizes that Hara fails to explicitly teach the change in power required by the battery is linked with the battery state of charge, but notes that this analysis borders on common sense, in that a battery having had a

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greater amount of power drawn from it (i.e., at a greater level of depletion) would predictably require a greater amount of power to return to a full charge than a battery having had a lesser amount of power either drawn or otherwise depleted from it, particularly absent any evidence to the contrary. It may be correct to assert that the requirement of power, for example to recharge, is not inherently related to the state of charge of a battery, the examiner asserts that it is at least certainly predictably so related as noted above. Applicant may additionally desire to note that this characteristic is illustrated in the prior art, which bears out that such a relationship as applied is certainly (1) well known in the art and (2) predictable. Note, for example, explicit and/or implicit teachings can be found in Wylie et al. (cited below), where an analysis of the prior art notes that the power required of a power producing apparatus is based on loading and the battery state of charge (col. 2, lines 21-37). Also note Kubo (cited below) at col. 2, lines 38-65, Center (cited below) at col. 4, lines 10-27 and Nakanowatari (cited below) at col. 8, lines 10-22 and 35-38.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nakanowatari (US 6,962,224), Wylie et al. (US 6,541,943), Kubo (US 5,722,502) and Center (US 5,402,007) teach either explicitly or implicitly that it is well known that battery state of charge is inversely linked to a power requirement to charge the battery.

9. Any inquiry specifically concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 571-272-6701.

Any inquiries of a general nature or relating to the status of this application may be made through either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A response to this action should be mailed to:

Mail Stop _____
Commissioner for Patents
P. O. Box 1450

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Alexandria, VA 22313-1450,
Or faxed to:
PTO Central Fax: 571-273-8300

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Primary Examiner
Art Unit 3618

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